

Short Communications

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Intraspecific Brood Parasitism in the Northern Flicker

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ABSTRACT.—Although intraspecific brood parasitism is common in many bird species, including several secondary cavity-nesting birds, it does not appear to have been reported in woodpeckers. We report a case of intraspecific brood parasitism in the Northern Flicker (*Colaptes auratus*) in which six to eight eggs were dumped into the host nest box during a 2- to 3-week period. We estimate that the host female laid a clutch of 8 to 10 eggs, and at the end of the nestling period we confirmed that 16 flicker eggs had been laid in the nest box. This instance of egg-dumping by a floater female or another resident female in the same territory or on an adjacent territory, could have been facilitated by a lack of suitable nest sites in the area coupled with intense nest-site competition from European Starlings (*Sturnus vulgaris*). Received 16 October 2003, accepted 24 March 2004.

Intraspecific brood parasitism occurs in a wide variety of bird species (Yom-Tov 1980, Petrie and Moller 1991, Zink 2000, Andersson and Aehering 2001), and has been documented in several secondary cavity-nesting species including European Starlings (*Sturnus vulgaris*; Romagnano et al. 1990, Pinxten et al. 1993, Sandell and Diemer 1999), House Wrens (*Troglodytes aedon*; Picman and Belles-Isles 1988), Tree Swallows (*Tachycineta bicolor*; Lombardo 1988), Eastern Bluebirds (*Sialia sialis*; Meek et al. 1994), Wood Ducks (*Aix sponsa*; Semel and Sherman 2001), and Common Goldeneyes (*Bucephala clangula*; Pöysä 1999). However, documentation of intraspecific brood parasitism (e.g., egg-dumping by a conspecific) in primary cavity-nesting birds such as woodpeckers appears to be absent from the literature. Wiebe (2002) reported an instance of classical polyandry in the Northern Flicker (*Colaptes auratus*) in which a female attended two nests concomitantly, but there was no evidence of brood parasitism. In-

traspecific egg-dumping in cavity-nesting birds, including primary cavity nesters such as flickers, may be common since suitable nest sites are often in short supply (see Brown 1984, Raphael and White 1984, Emlen and Wrege 1986, Picman and Belles-Isles 1988, Li and Martin 1991). Here, we report an apparent instance of intraspecific brood parasitism in a primary cavity-nesting species, the Northern Flicker. Since the flicker pair in question was not color banded, and because we did not conduct a genetic parentage analysis, we cannot be absolutely certain that egg dumping occurred. There is a remote possibility that the paired female may have laid more than one egg per day, although this has never been reported before in any woodpecker species (see Moore 1995).

All observations and nest checks in this study were made by ARB. He observed a pair of nesting Northern Flickers at a nest box in his back yard in Britton, Lenawee County, Michigan, from 8 May to 4 July 2003. The nest box was erected on a pole at a height of 4.4 m, angled slightly downward (for box dimensions see Bower 1994), and was situated in a semi-open area about 35 m from the back door of his residence. Flickers are considered weak excavators (Harestad and Keisker 1989, Winkler et al. 1995), and sometimes use wooden boxes for nesting (Bent 1964, Bower 1995, Ingold 1998). Since European Starlings frequently compete with flickers for nest cavities and boxes (Kerpez and Smith 1990, Ingold 1998), a nest box with a smaller entrance opening (5 cm diameter) designed to live-trap starlings was placed on a pole at the same height, 5 m away. This box was erected to lure starlings away from the neighboring flicker box. To further discourage starlings and attract flickers, the flicker nest box was completely filled with pine woodchips, thus preventing starling entry and allowing the flickers to “excavate” a cavity in the box.

On 8 May, a pair of Northern Flickers be-

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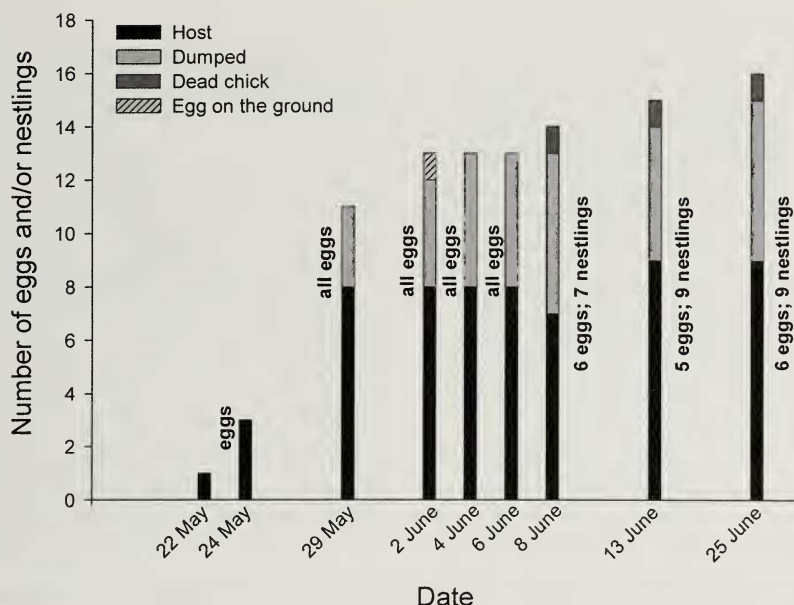


FIG. 1. Nesting chronology of a Northern Flicker pair in Lenawee County, Michigan, 2003, in which intraspecific brood parasitism occurred during a period of 2.5 weeks. Total number of eggs and nestlings found in the nest box on a given day are indicated next to bars. Because it was unclear on 8, 13, and 25 June what proportion of the eggs and nestlings were attributable to the host versus the parasite, we did not attempt to indicate this on the graph. It was also unclear whether the dead chick resulted from an egg that was dumped or laid by the host.

gan excavating woodchips from the flicker box; they had taken up residency in the box by 11 May, although egg-laying had not begun. Between 11 and 15 May, the flicker pair was evicted twice by starlings, in spite of the starling box trap located nearby. After each eviction, the flicker box was repacked with pine chips to discourage the starlings and encourage the flickers to excavate again. By 22 May, a flicker pair had taken up residency in the nest box again, although the contents of the box were not examined on this day. On the afternoon of 24 May, three flicker eggs were found in the box, suggesting that egg-laying was initiated on 22 May. On 29 May, 8 days after the initiation of egg-laying, 11 eggs were found in the nest box (Fig. 1). Although clutch sizes can range from 3 to 13 eggs (see Moore and Koenig 1986, Winkler et al. 1995, Wiebe 2003), female flickers lay only one egg per day (Sherman 1910, Moore 1995); thus a second female flicker dumped at least two and probably three eggs in the nest box between 24 and 29 May (Fig. 1).

ARB first observed apparent incubation be-

havior (continuous sitting) by both a male and female flicker on 29 May. This was probably the original mated pair, although we cannot be sure since the birds were not marked. On 2 June, 12 days after the onset of egg-laying, 12 eggs were found in the box and a single broken egg was found on the ground beneath the box, possibly having been removed by the host pair (removal was not documented). Since the birds initiated incubation about 5 days earlier, it is possible that a second female flicker dumped an additional egg (the egg on the ground) or two (the one in the box) between 29 May and 2 June. However, since flicker incubation typically begins with the penultimate egg (second-to-last; K. L. Wiebe pers. comm.), we assigned one of the two eggs to the resident female (egg laid on 30 May), and assumed that the other was dumped between 30 May and 2 June. Thirteen flicker eggs were found in the box on both 4 and 6 June, well after the onset of incubation, indicating that another egg had been dumped in the host box (Fig. 1). On 8 June, seven 1-day-old flicker nestlings, six unhatched eggs and

a single dead nestling were found in the box. This indicates that by 7 or 8 June, an additional egg was dumped into the host box since only 13 eggs were present on 6 June (Fig. 1). On 13 June, there were nine nestlings about 6 days old and five unhatched eggs (which were then removed). Since a single dead nestling had been removed on 8 June, our findings of 13 June suggest that an additional egg had been dumped into the box between 8 and 13 June (nine nestlings, five eggs, and one nestling that died; Fig. 1). By this point, 15 eggs had been laid in the host box, 8 or 9 of which were likely laid by the host female. The contents of the box were checked on several occasions between 13 and 24 June and on each occasion all nine nestlings were present. On 25 June, a large number of mites were found in the nest box; subsequently, the nestlings were removed and placed in a new box on the same pole. Upon examining the remaining nest contents of the original box, one additional flicker egg was found buried in the woodchips. Thus, a total of 16 eggs had been laid in the nest box during this reproductive effort with at least 6 and perhaps as many as 7 or 8 eggs having been dumped by at least one additional female. Between 26 June and 4 July all nine nestlings fledged.

Additional evidence suggesting that an extra-pair flicker may have dumped eggs into the resident flicker pair's nest box occurred on 9 June, when a female flicker landed on the roof of the nest box. This individual put on a conspicuous display by fanning her tail feathers and raising the feathers on the top of her head. When she peered into the nest box, the male that was in the box brooding the nestlings exited and aggressively chased this female to a nearby tree and then further pursued her more than 40 m from the box. About 1 hr later a female returned to the box and was again chased from the area by the resident male.

Intraspecific brood parasitism in Northern Flickers has not been reported previously. As in any cavity-nesting species, it is possibly the result of a shortage of suitable nest sites (Yom-Tov 1980, Picman and Belles-Isles 1988, Sandell and Diemer 1999) and/or the loss of a nest cavity during the egg-laying or incubation period (Yom-Tov 1980). Ingold (1998) found that European Starlings prefer to usurp freshly excavated flicker nest cavities

rather than use nearby, vacant nest boxes. In such instances, the benefits of intraspecific egg dumping might outweigh the costs of excavating a new cavity (assuming a suitable nest site is available) and starting the nesting cycle over. Wiebe (2003) developed a model that demonstrates that even in the face of intense starling competition, it virtually always benefits flickers to nest early rather than delay reproduction, except when the risk of cavity usurpation by starlings is very high (~75%). In any case, egg-dumping should be a profitable strategy for the brood parasite because its young are reared at no cost. The results of this study, in which the resident female laid a clutch of 8 or 9 eggs, and ultimately hatched 10 chicks, provide some evidence that intraspecific brood parasitism may be profitable.

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Common Loon Pairs Rear Four-Chick Broods

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ABSTRACT.—Common Loons (*Gavia immer*) normally lay a single clutch of two eggs each breeding season. They occasionally lay one- or three-egg clutches, and rarely, four-egg clutches. Participants of the Canadian Lakes Loon Survey provided seven independent observations of loon pairs rearing four-chick broods. Photographic evidence confirmed two separate instances of adult loon pairs at Anglin Lake, Saskatchewan, and Kaskabog Lake, Ontario, exhibiting parental behavior toward a four-chick brood. Occurrence of four-chick broods may be the result of supernumerary clutches, nest parasitism, post-hatch brood amalgam-

ation, or a combination of these factors. *Received 8 July 2003, accepted 24 March 2004.*

Supernumerary broods, either as a result of nest parasitism by unrelated conspecifics, supernumerary clutches, or post-hatch brood amalgamation, are relatively common among grebes (Storer and Nuechterlein 1992, Cullen et al. 1999, Muller and Storer 1999, Stout and Nuechterlein 1999, Stedman 2000) and waterfowl (Afton and Paulus 1992:90, table 3–21; Sayler 1992). However, there are few documented instances of supernumerary broods in loons (Barr et al. 2000), including the most widely studied species, the Common Loon

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